

BIOLOGY
Paper – 2
(PRACTICAL)

Three hours and a quarter

(The first 15 minutes of the examination are for reading the paper only.

Candidates must NOT start writing during this time).

All workings, including rough work, should be done on the same sheet as, and adjacent to, the rest of the answer in the answer script.

The intended marks for questions or parts of questions are given in brackets [].

Question 1.

[6]

Examine the given specimens **S-41** and **S-42** provided and answer the following:

- (a) Describe the flowers in semi-technical terms (details of individual whorls not required).
- (b) (i) With a pair of fine forceps remove the petals and stamens of S-41 only and display on a petridish and *show it to the Visiting Examiner.*
(ii) Draw a labelled diagram of the displayed parts.
- (c) Record the following features of the flowers S-41 and S-42 in a tabular form as given below.

Androecium	S-41	S-42
(i) Relation of stamens to petals		
(ii) Relationship among different stamens		
(iii) Nature of anther		
(iv) Mode of attachment of anther to filament		

Gynoecium	S-41	S-42
(i) Nature of stigma		
(ii) Type of placentation		
(iii) Position of ovary in relation to other whorls		

- (d) (i) Cut the L.S of the specimens S-41 and S-42, and *show them to the Visiting Examiner.*
- (d) (ii) Draw labelled diagrams of the L.S of S-41 and S-42.
- (e) (i) Cut the T.S of the ovaries of S-41 and S-42, and *show them to the Visiting Examiner.*
- (e) (ii) Draw the labelled sketches of the T.S of S-41 and S-42.
- (f) Write the floral formula for each specimen (S-41 and S-42).
- (g) Name the families to which each specimen belongs.
Mention **two** features that are peculiar to the family.
- (h) Give the scientific name of **one** economically important plant from each family.

Question 2.

[4]

Set-up an experiment to demonstrate that **S-43** produces oxygen during photosynthesis.

- (a) *Show the set-up to the Visiting Examiner.*
- (b) Make a list of the materials required for this experiment.
- (c) Draw a neat labelled sketch of your experiment.
- (d) Predict what will happen when the experiment is performed under the following conditions:
 - (i) if boiled water is used instead of tap water?
 - (ii) if a pinch of sodium bicarbonate is added to the water in the beaker?
 - (iii) if a mesophytic plant is used instead of S-43?
 - (iv) if some toxic substance is added to the water in the beaker?
- (e) Name the source of oxygen released during photosynthesis.
- (f) Give **one** chemical test to prove that the gas evolved is oxygen.

Question 3.

[5]

Make a temporary stained mount of the specimen **S-44**.

- (a) Follow the procedure given below:
 - (i) Cut many thin transverse sections of the specimen S-44 provided.
 - (ii) Select a good section and stain it and wash off the excess stain if necessary.
 - (iii) Mount it in glycerine on a slide.
- (b) *Show it to the Visiting Examiner* under a microscope.

- (c) Draw a neat labelled diagram of the mount as seen under a microscope.
- (d) Which stain did you use?
- (e) Identify the specimen and give *two* points of identification to support your answer.

Question 4.

[5]

You will be given **three** minutes each to identify the given specimens **A to E**. Take back your answer scripts to your working table and complete the rest of the work. Draw a neat labelled diagram of each specimen and give *two* reasons to support your answer in each case.

In case of models, mention the role of the part pointed in the model instead of writing points of identification.